KD Anderson & Associates, Inc.
Transportation Engineers

June 1, 2017

Mr. Jason Brandman
FIRST CARBON SOLUTIONS
1350 Treat Boulevard
Walnut Creek, CA 94597

RE: CIRCULATION TRANSPORTATION IMPROVEMENT PHASING PLAN FOR MERCED GATEWAY PROJECT, MERCED, CALIFORNIA

Dear Mr. Brandman:

This letter presents a *Transportation Improvement Phasing Plan* that has been prepared to determine the level of site development that can proceed prior to investing in major improvements to Campus Parkway assuming that baseline project frontage improvements required by the City of Merced are made.

The analysis is intended to identify the level of development that could:

1. Proceed prior to exceeding LOS D under "Existing Plus Project Phases" conditions at an all-way stop controlled intersection at Campus Parkway / Coffee Street.
2. Proceed with traffic signals at Campus Parkway / Coffee Street and/or Campus Parkway / Pluim Drive prior to installing major improvements in the Caltrans right-of-way.
3. Proceed prior to signalizing the Parsons Avenue / Coffee Street intersection.

It is important to note that many factors make identification of an exact project phasing schedule and transportation improvement implementation schedule difficult. In addition to market forces that may affect commercial development, recent legislative action has accelerated the probable schedule for the northerly extension of Campus Parkway beyond its current terminus at Childs Avenue. The DEIR analysis assumed that Campus Parkway would eventually be extended under the long term cumulative scenario but its presence under the "Existing Plus" conditions described herein could drastically change forecasts traffic patterns. As a result, it is likely that this phasing strategy will need to be modified as more information regarding both the timing of Campus Parkway and the location and nature of local development becomes available.

Executive Summary

1. ***An all-way stop control at Campus Parkway / Coffee Street will operate at LOS C with Phase 3 but would reach LOS E with Phase 4. With Phases 1-3 eastbound queueing on Campus Parkway will not extend to the NB ramp intersection, and modifying the NB off ramp to provide a second right turn lane is not immediately required. A total of 775 new p.m. peak hour trips would be generated with Phases 1-3. This represents 32% of the project's total new p.m. peak hour trips.***
2. ***A traffic signal at Campus Parkway / Coffee Street would be needed with Phase 4, and the NB SR 99 off ramp will need to be reconfigured to provide a second right turn lane. Without additional SR 99 interchange modifications the Campus Parkway/ Coffee Street intersection would operate at LOS D or better through Phase 6, but under the original access configuration***

ATTACHMENT 8

(i.e., full access at Coffee Street) LOS E would occur at the Campus Parkway / Coffee Street intersection with Phase 7. A total of 1,398 new p.m. peak hour trips would be generated by Phases 1-6. This represents 58% of the project's total new p.m. peak hour trips.

3. ***Because the Circulation Element Access Alternative provided incrementally better Level of Service, the amount of development that is permissible with the partial signal at Coffee Street and a full signal at Pluim Drive can reasonably be expected to exceed the limit under the original access plan. However, for the purpose of this assessment, Phase 6 is also assumed to be the limit of permissible development without additional interchange improvements.***
4. ***A traffic signal may be warranted at Parsons Avenue / Coffee Street with Phase 8 if left turns are prohibited at the Central Access on Coffee Street (intersection 15). A total of 1,676 new p.m. peak hour trips would occur as a result of Phases 1-7, or 70% of the project total.***

Development Assumptions

To assist in this analysis a potential development schedule was created that identified areas of the overall project that might incrementally proceed. Ten (10) separate phases were identified. It is important to note that these phases were initially identified in response to the DEIR's proposed project and that an alternative strategy may eventually result from implementation of the Circulation Element Alternative as is now anticipated

Required Improvements. The extent of frontage improvements required by the City of Merced with each phase was identified by City staff. These assumptions are noted in attachments A1-A10. It is recognized that the summary of frontage improvements will change with implementation of the modified Circulation Element Alternative.

Analysis Locations. The locations evaluated in this assessment are intended to provide the information needed to address operating Level of Service and traffic signal warrants. In the case of the Parsons Avenue / Coffee Street intersection, the volume of traffic at this location is dependent on traffic controls installed at the Coffee Street / Central Access intersection. The DEIR traffic study assumed that left turns would be prohibited at the Central Access is intersection under Existing Plus Project (Merced Gateway Build Out) conditions. However, because full access will be initially permitted at the Central Access, it is necessary to evaluate this driveway's operation in order to determine whether turn prohibitions are justified and if additional traffic will be diverted to the Parsons Avenue intersection by such prohibition.

Trip Generation Forecasts. The p.m. peak hour trip generation associated with each development phases was identified using the trip generation rates employed for the DEIR, and these rates are presented in Table 1. Table 2 presents the resulting trip generation forecasts.

TABLE 1
MERCED GATEWAY
TRIP GENERATION RATES

Code	Description	Unit	Trip Generation Rates per unit									
			Daily	AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
				In	Out	Total	In	Out	Total	In	Out	Total
220	Multiple Family Residential	Dwelling Unit	6.65	20%	80%	0.51	65%	35%	0.62	50%	50%	0.52
-	Fire Station	Firefighter	4.34	50%	50%	2.00	50%	50%	2.00	5%	50%	0.50
-	Transit Center	each	20	50%	50%	2.00	50%	50%	2.00	-	-	-
934	Fast Food Restaurant with drive-thru	ksf	496.12	51%	49%	45.42	52%	48%	32.65	51%	49%	59.00
946	Gasoline Sales with C-store	Fueling Position	152.84	51%	49%	11.84	51%	49%	13.86	50%	50%	19.46
932	Sit Down Restaurant	ksf	127.15	55%	45%	10.81	60%	40%	9.95	53%	47%	14.07
850	Supermarket	ksf	102.24	62%	38%	3.40	51%	49%	9.48	51%	49%	10.65
861	Sporting Goods Superstore	ksf	18.40	62%	38%	0.91	48%	52%	1.84	51%	49%	3.84
810	Tractor Supply Store	ksf	14.00	62%	38%	0.91	47%	53%	1.40	49%	51%	3.17
820	SC Retail (400 ksf+)	ksf	41.80	62%	38%	0.91	48%	52%	3.79	52%	48%	5.38
445	Movie Theater	ksf	62.65	-	-	-	62%	38%	4.91	75%	25%	4.70
310	Motel / Hotel	room	8.17	59%	41%	0.53	51%	49%	0.60	56%	44%	0.72

KDA

TABLE 2
MERCED GATEWAY TRIP GENERATION FORECASTS

Phase	Description	Quantity	Trip Generation PM Peak Hour		
			In	Out	Total
1	Fast Food Restaurant with drive-thru	5.35 ksf	91	84	175
	Pass-by Trips	50%	45	42	87
	Net New Trips		46	42	88
	Gasoline Sales with C-store	12 Fueling Position	85	81	166
	Pass-by trips		42	41	83
	Net new trips		43	40	83
	Total New Trips		**89**	**82**	**171**
2	Supermarket	54.2 ksf	262	252	514
	Pass-by trips	36%	94	91	185
	Net New Trips		168	161	329
	High Turnover Sit Down Restaurant	4.3 ksf	25	16	41
	Pass-by trips	35%	9	5	14
	Net New Trips		16	11	27
	Hotel	81 rooms	25	24	49
	Total New Trips		**209**	**196**	**405**
3	High Turnover Sit-Down Restaurant	5.4 ksf	32	22	54
	Pass-by Trips	35%	11	8	19
	Net new Trips		21	14	35
	Retail	50.8 ksf	92	101	193
	Pass-by Trips	15%	14	15	29
	Net New Trips		78	86	164
	Total New Trips		**99**	**100**	**199**
1-3	**Total New Trips Phase 1-3**		**397**	**378**	**775 (32%)**
4	High Turnover Sit-Down Restaurant	5.4 ksf	32	22	54
	Pass-by Trips	35%	11	8	19
	Net New Trips		21	14	35
	Retail	48.9 ksf	89	96	185
	Pass-by Trips		13	14	27
	Net New Trips		76	82	158
	Total New Trips		**97**	**96**	**193**
5	Multi-Family Residential	178 du's	72	38	110
	Fast Food	5.35 ksf	91	84	175
	Pass-by Trips		45	42	87
	Net New Trips		46	42	88
	Total New Trips		**118**	**80**	**198**

KDA

TABLE 2 (cont'd)
MERCED GATEWAY TRIP GENERATION FORECASTS

Area	Description	Quantity	Trip Generation PM Peak Hour In	Out	Total
6	Fire Station	1	4	4	8
	Transit Center	1	1	1	2
	High Turnover Sit-Down Restaurant	5.4 ksf	32	22	54
	Pass-by Trips	35%	11	8	19
	Net New Trips		21	14	35
	Retail	50.4 ksf	92	99	191
	Pass-by Trips	15%	14	15	29
	Net New Trips		78	84	162
	Farm & Ranch Supply	21.3 ksf	14	16	30
	Pass-by Trips	15%	2	3	5
	Net New Trips		12	13	25
	Total New Trips		**116**	**116**	**232**
4-6	**Total Phases 4-6**		**331**	**292**	**623**
	Total Phases 1-6				**1,398 (58%)**
7	Movie Theater	38.8 ksf	118	72	190
	Fast Food Restaurant	5.35 ksf	91	84	175
	Pass-by Trips	50%	45	42	87
	Net New Trips		46	42	88
	Total New Trips		**164**	**114**	**278**
Total New Trips Project Build Out (Phases 1-10)					**2,392**

Trip Distribution. The directional distribution assumptions made for "Existing plus Project" conditions in the DEIR traffic study were re-used. As was noted in the DEIR traffic study, because existing traffic volumes are low, it was assumed that background volumes on Campus Parkway or Coffee Street were not sufficient to be an appreciable source of the project's pass-by trips. Pass-by trips were again assumed to be diverted from through traffic on SR 99.

Trip Assignment. Trips were assigned to the study area circulation system assuming access that is available under each phase. In the case of driveways on Coffee Street, full access was assumed for the new retail driveways under these initial conditions.

Evaluation

Existing plus Project Phases traffic volume were evaluated within the context of the circulation system that would be available under each phase. Improved intersections were identified, Simtraffic simulation was performed and resulting Levels of Service were calculated in order to identify the development phase that would result in conditions in excess of the City's LOS D standard.

KDA

Permissible Development with All-Way Stop at Campus Parkway / Coffee Street. The simulation results indicated that Phases 1 thru 3 could be accommodated with an all-way stop at LOS C, but that Phase 4 would result in LOS E conditions at the intersection.

Figure 1 illustrates Existing Plus Phases 1-3 traffic volumes and schematically notes the intersection geometry that would be available at the end of Phase 3 under the original access alternative. An all-way stop remains at the Campus Parkway / Coffee Street intersection, but required frontage improvements have resulted in some additional lanes at the intersection. Under the Circulation Element Alternative it is anticipated the Coffee Street approaches will not be widened because only single right turn lanes will ultimately be created with the partial traffic signal.

As noted in Table 3, at these volume levels the SR 99 ramp intersections continue to operate at LOS A. The effect of all-way stop operation on queueing in the area of the Campus Parkway intersections has also been evaluated. With Phase 1-3, the eastbound queues extending from Coffee Street back towards SR 99 would reach 190 feet (left turn lane) 160 feet (through lane and 110 feet (through plus right turn lane). These queues would not interfere with the operation of the NB ramp intersection, and as a result it would not be necessary to reconfigure the NB off ramp to provide a second right turn lane until after Phase 3.

TABLE 3
EXISTING PLUS PHASES 1-3 INTERSECTION LEVELS OF SERVICE
EITHER ACCESS ALTERNATIVE

Intersection	Control	PM Peak Hour		Traffic Signal Warranted
		Average Delay (sec/veh)	LOS	
9. Parsons Avenue / Coffee Street	AWS	-	-	No
10. SB SR 99 ramps / Mission Avenue	Signal	8.9	A	-
11. NB SR 99 ramps / Campus Parkway	Signal	5.5	A	-
12. Campus Parkway / Coffee Street	AWS	19.4	C	
15. Coffee Street / Central Access				

Permissible Development with a Full Access Traffic Signal at Campus Parkway / Coffee Street. The simulation results indicate that under the original access proposal Phases 1 thru 6 could be accommodated with a full access traffic signal at the Campus Parkway / Coffee Street intersection, but that Phase 7 would result in LOS E conditions at the intersection. It is important to note, however, that this evaluation does not assume that Campus Parkway is extended northerly beyond Childs Avenue. This street extension could reasonably be anticipated to occur before the project exceeded Phase 3 and would appreciably affect local traffic conditions. As a result additional analysis may be required as development proceeds. Figure 2 illustrates Existing Plus Phases 1-6 traffic volumes and schematically notes the intersection geometry that would be available at the end of Phase 6. A traffic signal has been installed at the Campus Parkway / Coffee Street intersection, but portions of the required frontage improvements can now be used to create auxiliary lanes that were not feasible with an all-way stop (i.e., dual left turn lanes). As noted in Table 4, at these volume levels the SR 99 ramp intersections continue to operate at LOS A or LOS B. However, to address queuing issues in the area between Coffee Street and SR 99 the Northbound SR 99 off ramp would be reconfigured to provide a second right turn lane when the Coffee Street intersection is signalized.

KDA

TABLE 4 EXISTING PLUS PHASES 1-6 INTERSECTION LEVELS OF SERVICE ORIGINAL ACCESS (FULL ACCESS AT COFFEE STREET)				
Intersection	**Control**	**PM Peak Hour**		**Traffic Signal Warranted**
		Average Delay (sec/veh)	**LOS**	
9. Parsons Avenue / Coffee Street	AWS	-	-	No
10. SB SR 99 ramps / Mission Avenue	Signal	12.6	B	-
11. NB SR 99 ramps / Campus Parkway	Signal	8.0	A	-
12. Campus Parkway / Coffee Street	Signal	33.5	C	-
15. Coffee Street / Central Access Westbound Approach	WB Stop	10.5	B	No

Table 5 summarizes conditions with Phase 7. As shown, while the SR 99 ramps would operate at LOS B, the Campus Parkway / Coffee Street intersection operates at LOS E, which exceeds the City's LOS D minimum.

TABLE 5 EXISTING PLUS PHASES 1-7 INTERSECTION LEVELS OF SERVICE ORIGINAL ACCESS (FULL ACCESS AT COFFEE STREET)				
Intersection	**Control**	**PM Peak Hour**		**Traffic Signal Warranted**
		Average Delay (sec/veh)	**LOS**	
9. Parsons Avenue / Coffee Street	AWS			No
10. SB SR 99 ramps / Mission Avenue	Signal	16.6	B	-
11. NB SR 99 ramps / Campus Parkway	Signal	14.3	B	-
12. Campus Parkway / Coffee Street	Signal	59.3	E	-
15. Coffee Street / Central Access Westbound Approach	WB Stop	14.4	B	No
18. Coffee Street / South Access Westbound Approach	WB Stop	150.3	F	No

Permissible Development with Modified Circulation Element Alternative Traffic Signals. If the modified Circulation Element Alternative is pursued then traffic signals will be created at the new Pluim Drive intersection (full access) and a partial signal will be constructed at the Coffee Street intersection. The order of installation at these locations is unknown. The exact level of development that can be accommodated under this circulation alternative has not been calculated, however, the DEIR analysis concluded that Levels of Service with the Circulation Element Alternative were generally better than those identified under the original access alternative. Thus, it is reasonable to conclude that the amount of development that can be accommodated will be similar to or greater than that identified above. (i.e., Phase 1-6 permitted). However, it will be appropriate to affirm this conclusion as development proceeds.

KDA

Traffic Signal Warrant at Parsons Avenue / Coffee Street. The DEIR traffic study noted that under the original access proposal the Parsons Avenue / Coffee Street intersection would eventually carry volumes that satisfied MUTCD peak hour traffic signal warrants, even though the operating Level of Service was acceptable. The phase that would result in volumes that met warrants would depend on the traffic control at the Central Access and the location of development. Development south of Campus Parkway has relatively little effect on the volume of traffic at the Parsons Avenue / Coffee Street intersection. As noted in Table 6, if access at the Central Access on Coffee Street (intersection 15) were to be limited to right-turns-only, then traffic signal warrants could be met at the Parsons Avenue / Coffee Street intersection with completion of Phase 8.

TABLE 6
PARSONS AVENUE / COFFEE STREET INTERSECTION TRAFFIC SIGNAL WARRANTS WITH ORIGINAL ACCESS ALTERNATIVE

Development Level	Central Access Control	PM Peak Hour Volumes (VPH)		Traffic Signal Warranted?
		Major	Minor	
Phase 7	Full	347	304	No
	No lefts	474	304	No
Phase 8	Full Access	395	346	No
	No lefts	535	346	Yes
Project Build Out	No lefts	559	511	Yes

In general, the Circulation Element Alternative results in less traffic on Coffee Street than was anticipated under the original access alternative. Thus, while a traffic volume forecast has not been prepared, it is reasonably to conclude that a traffic signal will not be needed at this intersection under this alternative until phase 8 or later.

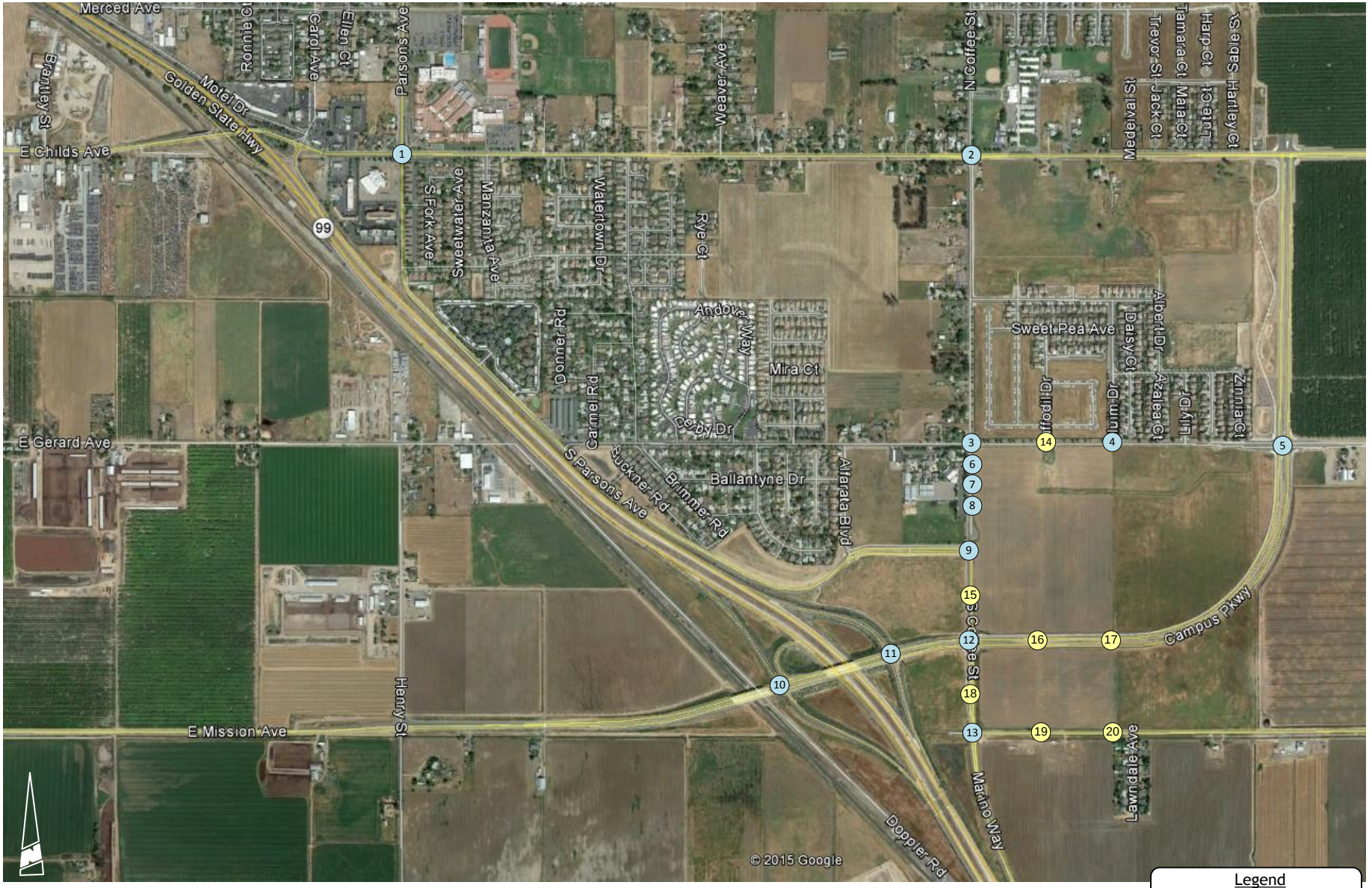
Please feel free to call me if you have any questions or need more information.

Sincerely yours,

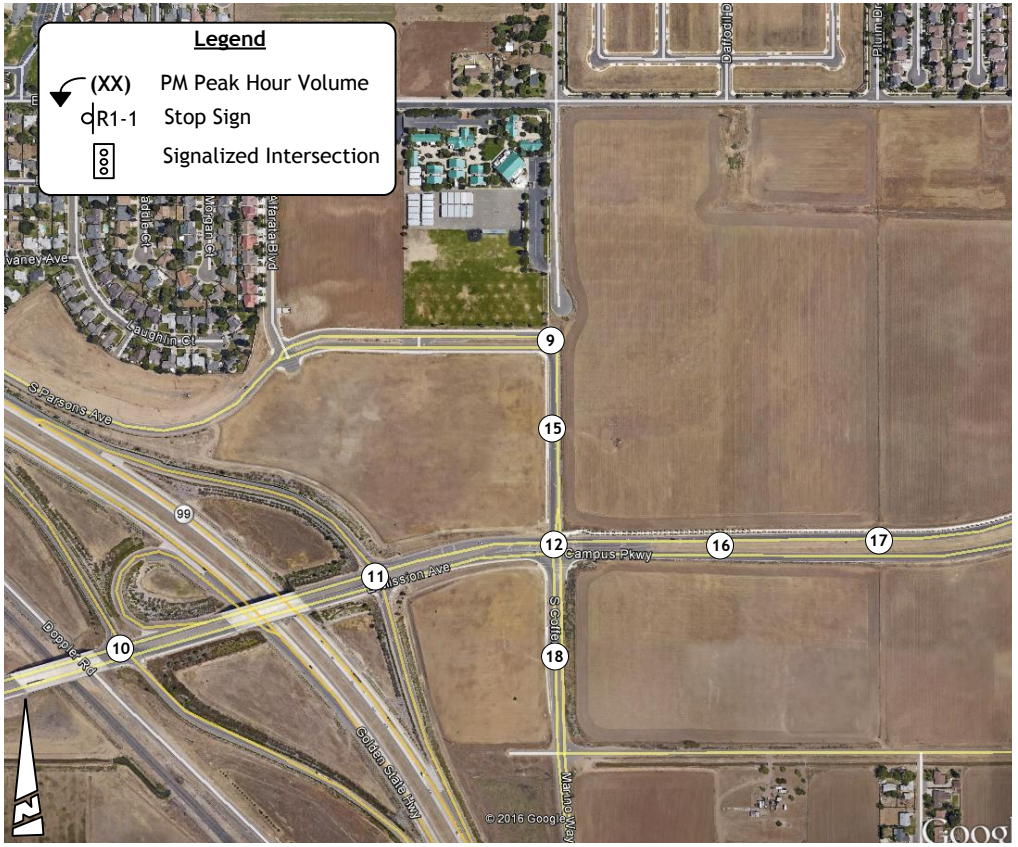
KD Anderson & Associates, Inc.

Kenneth D. Anderson, P.E.
President

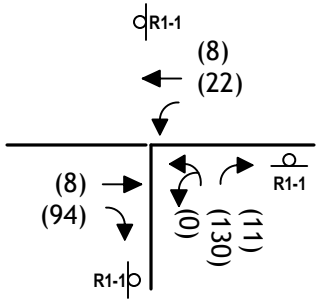
Attachment: Phase illustrations, TRAFFIX assignments, SimTraffic summary results



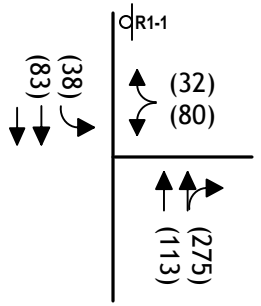
STUDY INTERSECTIONS



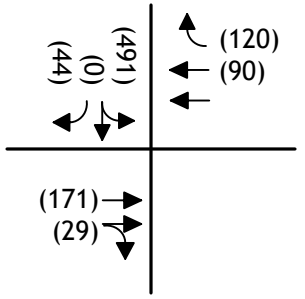
9 — Parsons Ave/ Coffee St



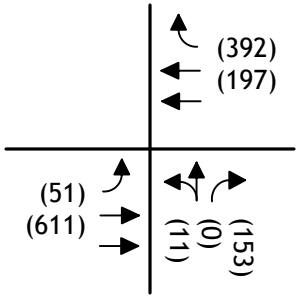
15 — Coffee St/ Central Access



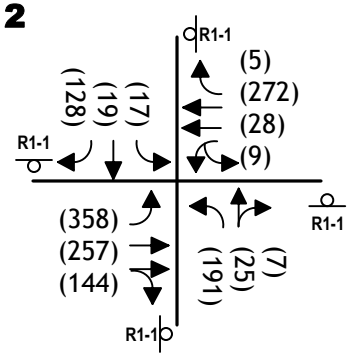
10 — SB SR 99 / E Mission Ave



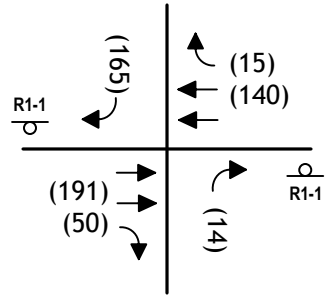
11 — NB SR 99 / Campus Pkwy



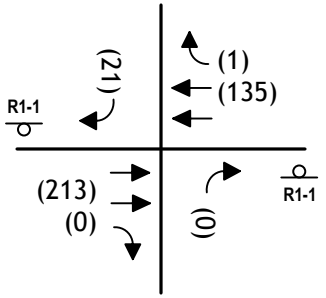
12 — Coffee St/ Campus Pkwy



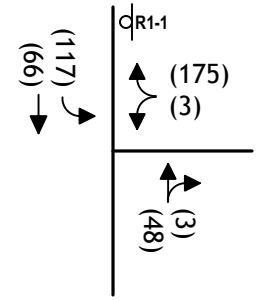
16 — Central Access/ Campus Pkwy



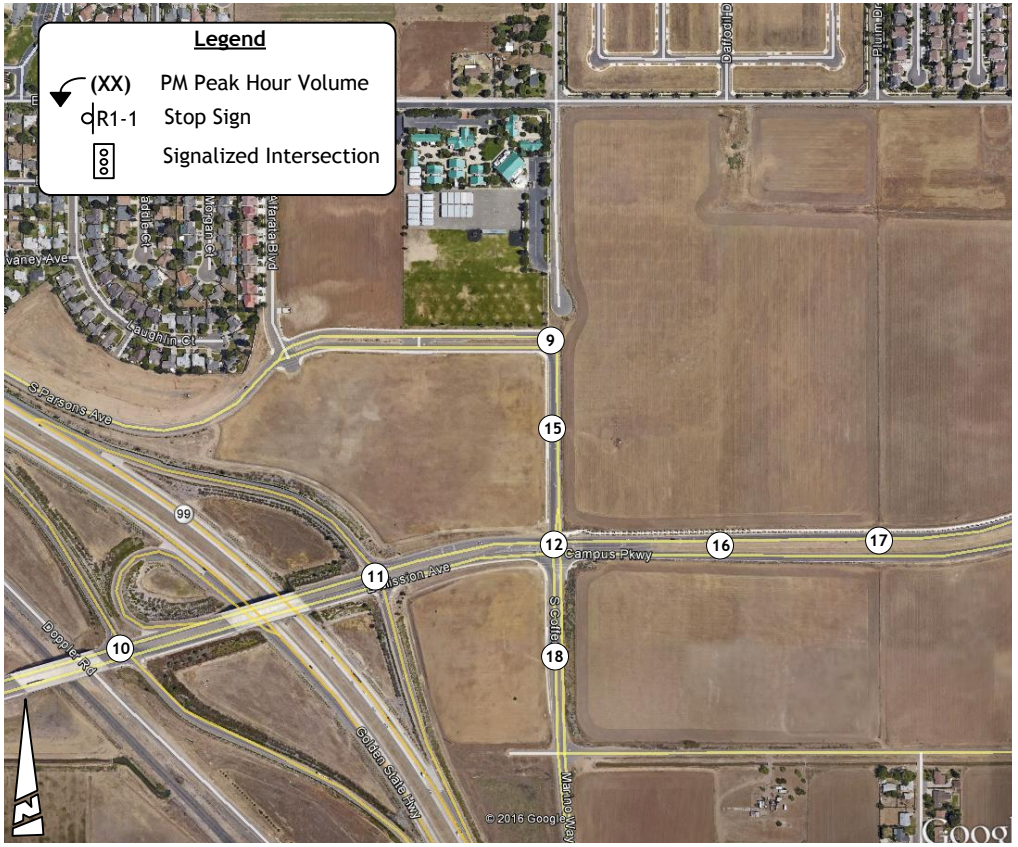
17 — East Access/ Campus Pkwy



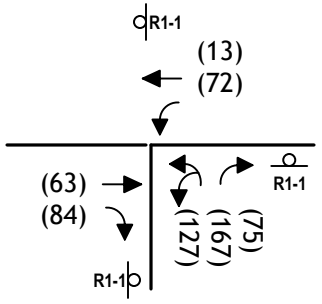
18 — Coffee St/ South Access



PHASES 1 THRU 3 TRAFFIC VOLUMES AND LANE CONFIGURATIONS

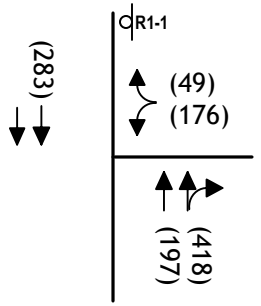


9



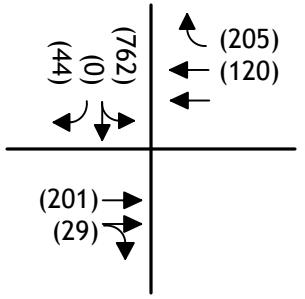
Parsons Ave/ Coffee St

15



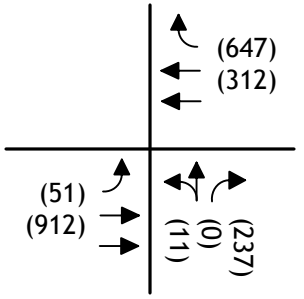
Coffee St/ Central Access

10



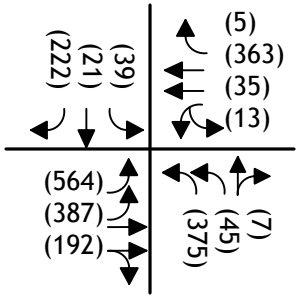
SB SR 99 / E Mission Ave

11



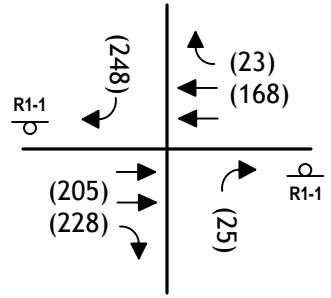
NB SR 99 / Campus Pkwy

12



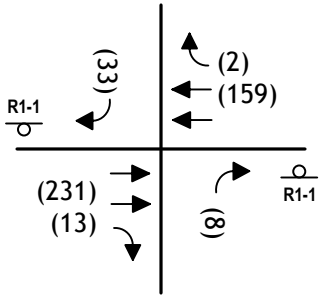
Coffee St/ Campus Pkwy

16



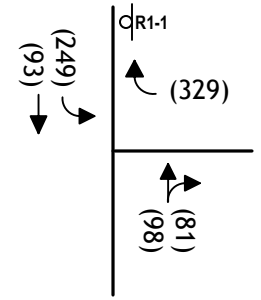
Central Access/ Campus Pkwy

17



East Access/ Campus Pkwy

18



Coffee St/ South Access

KD Anderson & Associates, Inc.
Transportation Engineers

PHASES 4 THRU 6 TRAFFIC VOLUMES AND LANE CONFIGURATIONS

3260-02 LT 8/8/2016

figure 3

10: SR 99 SB Ramps & Mission Ave Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	13.2	11.7	7.0	8.9

11: SR 99 NB Ramps & Mission Ave/Campus Parkway Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.0	6.1	5.2	5.5

12: Coffee St & Campus Parkway Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	24.0	17.4	14.2	8.8	19.4

Total Zone Performance

Denied Del/Veh (s)	0.1
Total Del/Veh (s)	1186.5

10: SR 99 SB Ramps & Mission Ave Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	20.3	17.5	9.7	12.6

11: SR 99 NB Ramps & Mission Ave/Campus Parkway Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	6.7	9.0	8.9	8.0

12: Coffee St & Campus Parkway Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	31.5	45.9	36.8	18.7	33.5

Total Zone Performance

Denied Del/Veh (s)	0.2
Total Del/Veh (s)	1441.6

15: Coffee St & Central Access Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0
Total Del/Veh (s)	10.5	3.5	4.4	4.9

18: Coffee St & Southside Access Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.3	0.0	0.0	0.2
Total Del/Veh (s)	5.4	1.7	3.0	4.0

Total Zone Performance

Denied Del/Veh (s)	0.3
Total Del/Veh (s)	644.6

Intersection: 10: SR 99 SB Ramps & Mission Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	T	T	LT	R
Maximum Queue (ft)	102	96	63	64	200	36
Average Queue (ft)	43	34	23	23	106	8
95th Queue (ft)	84	74	50	53	170	28
Link Distance (ft)	3477	3477	156	156	1076	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						1000
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 11: SR 99 NB Ramps & Mission Ave/Campus Parkway

Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	R	LT	R
Maximum Queue (ft)	77	120	108	94	111	181	38	148
Average Queue (ft)	30	52	44	16	42	91	6	63
95th Queue (ft)	64	100	90	55	92	156	25	110
Link Distance (ft)		800	800	646	646		538	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	330					450		425
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 12: Coffee St & Campus Parkway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	UL	T	T	R	L	L	TR	L
Maximum Queue (ft)	310	320	239	293	81	274	339	70	250	273	310	81
Average Queue (ft)	157	190	58	155	33	96	184	5	91	175	46	27
95th Queue (ft)	278	293	156	263	69	227	299	49	211	263	159	61
Link Distance (ft)			646	646		416	416	416			372	
Upstream Blk Time (%)							0				0	
Queuing Penalty (veh)							0				0	
Storage Bay Dist (ft)	450	450			270				250	250		200
Storage Blk Time (%)						0			0	2		
Queuing Penalty (veh)						0			0	1		

Intersection: 12: Coffee St & Campus Parkway

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	62	171
Average Queue (ft)	15	71
95th Queue (ft)	47	134
Link Distance (ft)	369	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		300
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 2

Intersection: 15: Coffee St & Central Access

Movement	WB	NB	SB
Directions Served	LR	R	LT
Maximum Queue (ft)	134	16	141
Average Queue (ft)	57	1	32
95th Queue (ft)	104	9	96
Link Distance (ft)	303	369	313
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 18: Coffee St & Southside Access

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	126	9	71
Average Queue (ft)	61	0	21
95th Queue (ft)	99	7	57
Link Distance (ft)	311	328	372
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0

10: SR 99 SB Ramps & Mission Ave Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	28.5	23.6	12.6	16.6

11: SR 99 NB Ramps & Mission Ave/Campus Parkway Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	13.3	11.9	26.2	14.3

12: Coffee St & Campus Parkway Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	1.4	0.0	0.3
Total Del/Veh (s)	54.1	54.8	98.5	21.8	59.3

Total Zone Performance

Denied Del/Veh (s)	3.2
Total Del/Veh (s)	2128.0

15: Coffee St & Central Access Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0
Total Del/Veh (s)	14.4	4.9	4.2	6.1

18: Coffee St & Southside Access Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	150.3	0.0	0.0	76.0
Total Del/Veh (s)	84.5	7.5	3.7	43.4

Total Zone Performance

Denied Del/Veh (s)	108.3
Total Del/Veh (s)	1684.7

Intersection: 10: SR 99 SB Ramps & Mission Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	T	T	LT	R
Maximum Queue (ft)	123	120	80	75	261	42
Average Queue (ft)	54	52	31	26	144	8
95th Queue (ft)	103	99	63	58	224	28
Link Distance (ft)	3477	3477	156	156	1076	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						1000
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 11: SR 99 NB Ramps & Mission Ave/Campus Parkway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	B52
Directions Served	L	T	T	T	T	R	LT	R	T
Maximum Queue (ft)	117	304	278	109	175	282	136	274	7
Average Queue (ft)	34	96	108	28	64	148	15	130	0
95th Queue (ft)	83	250	258	77	129	243	127	265	7
Link Distance (ft)		800	800	646	646		538		559
Upstream Blk Time (%)							0	0	
Queuing Penalty (veh)							0	0	
Storage Bay Dist (ft)	330					450		425	
Storage Blk Time (%)		1					0	1	
Queuing Penalty (veh)		0					0	0	

Intersection: 12: Coffee St & Campus Parkway

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	SB
Directions Served	L	L	T	TR	UL	T	T	R	L	L	TR	L
Maximum Queue (ft)	309	334	572	642	114	306	371	107	370	372	410	113
Average Queue (ft)	188	204	200	430	49	110	208	7	325	361	356	39
95th Queue (ft)	283	299	510	701	94	252	330	80	445	410	522	86
Link Distance (ft)			646	646		416	416	416			372	
Upstream Blk Time (%)			0	5		0	1	0	1	19	32	
Queuing Penalty (veh)			1	36		0	1	0	0	0	198	
Storage Bay Dist (ft)	450	450			270				450	450		200
Storage Blk Time (%)			0			0			1	19	32	
Queuing Penalty (veh)			0			0			0	13	174	

Intersection: 12: Coffee St & Campus Parkway

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	61	213
Average Queue (ft)	14	94
95th Queue (ft)	43	170
Link Distance (ft)	369	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		300
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 424

Intersection: 15: Coffee St & Central Access

Movement	WB	NB	NB	SB
Directions Served	LR	T	R	LT
Maximum Queue (ft)	160	67	177	169
Average Queue (ft)	64	2	11	34
95th Queue (ft)	122	19	75	112
Link Distance (ft)	303	369	369	313
Upstream Blk Time (%)	0	0	0	
Queuing Penalty (veh)	0	0	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 18: Coffee St & Southside Access

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	358	105	102
Average Queue (ft)	297	31	30
95th Queue (ft)	435	82	79
Link Distance (ft)	311	328	372
Upstream Blk Time (%)	78		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0

10: SR 99 SB Ramps & Mission Ave Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.0	0.0
Total Del/Veh (s)	12.4	11.1	7.1	8.8

11: SR 99 NB Ramps & Mission Ave/Campus Parkway Performance by approach

Approach	EB	WB	NB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	5.0	6.1	5.1	5.5

12: Coffee St & Campus Parkway Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	17.1	16.4	11.0	8.4	15.1

Total Zone Performance

Denied Del/Veh (s)	0.1
Total Del/Veh (s)	931.2

Intersection: 10: SR 99 SB Ramps & Mission Ave

Movement	EB	EB	WB	WB	SB	SB
Directions Served	T	TR	T	T	LT	R
Maximum Queue (ft)	70	80	40	42	130	40
Average Queue (ft)	27	26	14	13	75	8
95th Queue (ft)	56	57	33	35	116	28
Link Distance (ft)	3477	3477	156	156	1076	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						1000
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 11: SR 99 NB Ramps & Mission Ave/Campus Parkway

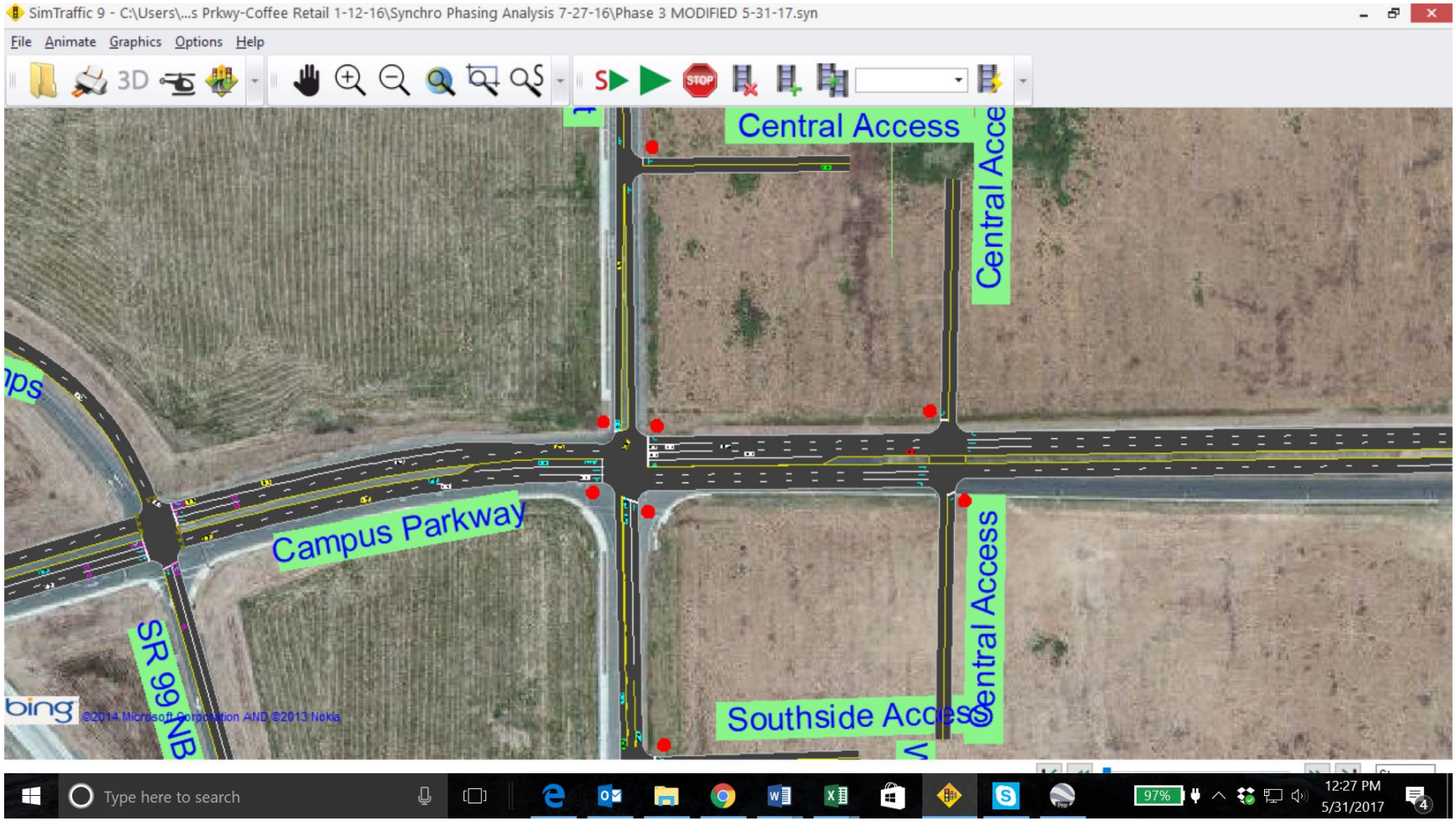
Movement	EB	EB	EB	WB	WB	WB	NB	NB
Directions Served	L	T	T	T	T	R	LT	R
Maximum Queue (ft)	61	76	78	35	77	72	31	82
Average Queue (ft)	25	31	25	7	23	38	6	35
95th Queue (ft)	51	67	59	28	56	63	23	64
Link Distance (ft)		800	800	665	665		538	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	330					450		425
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 12: Coffee St & Campus Parkway

Movement	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	UL	T	T	R	L	TR	LTR
Maximum Queue (ft)	216	223	135	53	107	174	28	109	52	90
Average Queue (ft)	102	49	60	20	29	73	4	49	21	40
95th Queue (ft)	188	157	103	44	66	134	18	85	47	71
Link Distance (ft)		665	665		434	434	434		377	374
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	200			270				250		
Storage Blk Time (%)	4									
Queuing Penalty (veh)	6									

Zone Summary

Zone wide Queuing Penalty: 6


SimTraffic 9 - C:\Users\...s Prkwy-Coffee Retail 1-12-16\Synchro Phasing Analysis 7-27-16\Phase 3 MODIFIED 5-31-17.syn
File Animate Graphics Options Help
Central Access
Central Access
Campus Parkway
SR 99 NB
Southside Access
Central Access
bing
©2014 Microsoft Corporation AND ©2013 Nokia
Type here to search
97%
12:27 PM
5/31/2017